

## Complete Summary

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### GUIDELINE TITLE

Prevention and management of obesity (mature adolescents and adults).

### BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2006 Nov. 105 p. [226 references]

### GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2005 Nov. 100 p.

## COMPLETE SUMMARY CONTENT

SCOPE  
 METHODOLOGY - including Rating Scheme and Cost Analysis  
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## SCOPE

### DISEASE/CONDITION(S)

Obesity

### GUIDELINE CATEGORY

Diagnosis  
 Management  
 Prevention

Risk Assessment  
Screening  
Treatment

## **CLINICAL SPECIALTY**

Endocrinology  
Family Practice  
Internal Medicine  
Nutrition  
Pediatrics  
Preventive Medicine  
Surgery

## **INTENDED USERS**

Advanced Practice Nurses  
Allied Health Personnel  
Health Care Providers  
Health Plans  
Hospitals  
Managed Care Organizations  
Nurses  
Physician Assistants  
Physicians

## **GUIDELINE OBJECTIVE(S)**

- To increase awareness of body mass index (BMI)
- To improve the percentage of patients who have received education and counsel regarding weight loss
- To improve the outcome of the treatment for obesity
- To improve community (employers, schools) involvement in the prevention and treatment of obesity

## **TARGET POPULATION**

Mature adolescent and adult patients

This guideline does not include the patient population of pregnant women or body builders/weight trainers.

While this guideline does not address the pediatric population, the work group acknowledges the importance of addressing this epidemic and is continuing to gather evidence for future guideline expansion.

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Prevention/Diagnosis/Risk Assessment**

1. Measure height and weight and calculate body mass index (BMI), preferably annually

2. Assess for major and minor comorbid conditions including hypertension, cigarette smoking, peripheral vascular disease, type 2 diabetes mellitus, depression, eating disorders
3. Advise weight maintenance and manage other risk factors
4. Assess readiness to lose weight

### **Treatment/Management**

1. Follow the 5 As (Ask, Advice, Assist, Assess, Arrange)
2. Provide lower calorie balanced eating plan, encourage calorie reduction, and provide referral to a dietitian
3. Physical activity
4. Behavioral management and counseling including self-monitoring of weight, nutrition, and activity; stimulus control; cognitive restructuring; goal setting, social support, etc.
5. Pharmacologic therapy including:
  - Food and Drug Administration (FDA) approved medication, such as sibutramine and orlistat
  - Nonprescription and natural medications.

**Note:** Most of dietary supplements used for weight loss are not FDA approved for weight loss and not recommended. Refer to Appendix F in the original guideline document for the list of these supplements and their safety and efficacy profile.

6. Surgical procedures including vertical banded gastroplasty, laparoscopic adjustable gastric band, biliopancreatic diversion, duodenal switch, and Roux-en-Y gastric bypass
7. Regular follow-ups

### **MAJOR OUTCOMES CONSIDERED**

- Effectiveness of weight loss interventions (e.g., diet, physical activity, medication)
- Effect of weight loss interventions on prevention and management of type 2 diabetes mellitus and cardiovascular risk factors
- Adverse events and complications associated with pharmacological agents and surgery

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Searches of Electronic Databases

### **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

Not stated

### **NUMBER OF SOURCE DOCUMENTS**

Not stated

## **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Weighting According to a Rating Scheme (Scheme Given)

### **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

Key conclusions (as determined by the work group) are supported by a conclusion grading worksheet that summarizes the important studies pertaining to the conclusion. Individual studies are classed according to the system presented below, and are designated as positive, negative, or neutral to reflect the study quality.

#### **Conclusion Grades:**

**Grade I:** The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of any significant doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large samples to have adequate statistical power.

**Grade II:** The evidence consists of results from studies of strong design for answering the question addressed, but there is some uncertainty attached to the conclusion because of inconsistencies among the results from the studies or because of minor doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the question addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

**Grade III:** The evidence consists of results from studies of strong design for answering the question addressed, but there is substantial uncertainty attached to the conclusion because of inconsistencies among the results of different studies or because of serious doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from a limited number of studies of weak design for answering the question addressed.

**Grade Not Assignable:** There is no evidence available that directly supports or refutes the conclusion.

#### **Study Quality Designations:**

The quality of the primary research reports and systematic reviews are designated in the following ways on the conclusion grading worksheets:

**Positive:** indicates that the report or review has clearly addressed issues of inclusion/exclusion, bias, generalizability, and data collection and analysis.

**Negative:** indicates that these issues (inclusion/exclusion, bias, generalizability, and data collection and analysis) have not been adequately addressed.

**Neutral:** indicates that the report or review is neither exceptionally strong nor exceptionally weak.

**Not Applicable:** indicates that the report is not a primary reference or a systematic review and therefore the quality has not been assessed.

### **Classes of Research Reports:**

#### **A. Primary Reports of New Data Collection:**

##### **Class A:**

- Randomized, controlled trial

##### **Class B:**

- Cohort study

##### **Class C:**

- Non-randomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

##### **Class D:**

- Cross-sectional study
- Case series
- Case report

#### **B. Reports that Synthesize or Reflect upon Collections of Primary Reports:**

##### **Class M:**

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

##### **Class R:**

- Consensus statement
- Consensus report
- Narrative review

##### **Class X:**

- Medical opinion

### **METHODS USED TO ANALYZE THE EVIDENCE**

Review of Published Meta-Analyses  
Systematic Review with Evidence Tables

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Not stated

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Not stated

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Not applicable

## **COST ANALYSIS**

A formal cost analysis was not performed and published cost analyses were not reviewed.

## **METHOD OF GUIDELINE VALIDATION**

Clinical Validation-Pilot Testing  
Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

### **Institute Partners: System-Wide Review**

The guideline draft, discussion, and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member medical groups during an eight-week period of review period.

Each of the Institute's participating medical groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating medical groups following general implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

### **Guideline Work Group**

Following the completion of the review period, the guideline work group meets 1 to 2 times to review the input received. The original guideline is revised as necessary and a written response is prepared to address each of the responses

received from member groups. Two members of the Committee on Evidence-Based Practice carefully review the input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of four questions: (1) Is there consensus among all ICSI member groups and hospitals on the content of the guideline document? (2) Has the drafting work group answered all criticisms reasonably from the member groups? (3) Within the knowledge of the appointed reviewer, is the evidence cited in the document current and not out-of-date? (4) Is the document sufficiently similar to the prior edition that a more thorough review (critical review) is not needed by the member group? The committee then either approves the guideline for release as submitted or negotiates changes with the work group representative present at the meeting.

### **Pilot Test**

Member groups may introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer, and other practice systems. Evaluation and assessment occur throughout the pilot test phase, which usually lasts for three-six months. At the end of the pilot test phase, ICSI staff and the leader of the work group conduct an interview with the member groups participating in the pilot test phase to review their experience and gather comments, suggestions, and implementation tools.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline, and the Committee on Evidence-Based Practice reviews the revised guideline and approves it for release.

## **RECOMMENDATIONS**

### **MAJOR RECOMMENDATIONS**

**Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems Improvement (ICSI):** For a description of what has changed since the previous version of this guidance, refer to "[Summary of Changes -- November 2006](#)."

The recommendations for the prevention and management of obesity in mature adolescents and adults are presented in the form of an algorithm with 12 components, accompanied by detailed annotations. An algorithm is provided for [Prevention and Diagnosis](#). Clinical highlights and selected annotations (numbered to correspond with the algorithm) follow.

Class of evidence (A-D, M, R, X) and conclusion grade (I-III, Not Assignable) definitions are repeated at the end of the "Major Recommendations" field.

### **Clinical Highlights**

- Obesity is a chronic disease that is multi-factorial with complex political, social, psychological, environmental, economic, and metabolic causes and consequences. Obesity affects essentially every organ system in the body.

- Health consequences increase across the body mass index (BMI) span, not just for the extremely obese. (*Annotation #1*)
- Calculate the BMI; classify the individual based on the BMI categories. Educate patients about their BMI and their associated risks. (*Annotation #1, 2*)
  - Effective weight management strategies are available and include nutrition, physical activity, lifestyle changes, medication, and surgery. (*Annotation #9*)
  - The physician should follow the 5 A's (Ask, Advise, Assess, Assist, Arrange). Physician intervention can be effective, the physician can have an important influence, and successful weight management is possible. (*Annotation #8, 9*)
  - Weight management requires a team approach. Be aware of clinical and community resources. The patient needs to have an ongoing therapeutic relationship and follow-up with a health care team. Weight control is a lifelong commitment and the health care team can assist with setting specific goals with the patient. (*Annotation #8, 9*)
  - Beyond their clinical role, primary care physicians should be aware of their roles as community leaders and public health advocates. (*Annotation #12*)

### **Prevention and Diagnosis Algorithm Annotations**

#### **1. Measure Height, Weight, and Calculate BMI (Preferably Annually for Screening and as Needed for Management)**

##### **Key Points:**

- Health consequences exist across the BMI span and obesity is a multi-factorial chronic disease.
- BMI should be calculated preferably annually for screening and as needed for management.
- BMI calculation extends to all age groups. Adolescents less than Tanner stage 5 and children should be evaluated by available growth charts.

##### **1a. Calculate BMI**

Calculate the BMI at least annually for screening and as needed for management. Classify it based on the BMI categories. Educate patients about their BMI and associated risks for them.

BMI = weight (kg)/height squared (m<sup>2</sup>) or (pounds x 703)/inches<sup>2</sup>

##### **Adult BMI Categories**

<b>BMI</b>	<b>Category</b>
Less than 18.5	Underweight
18.5 to 24.9	Normal weight
25 to 29.9	Overweight
30 to 34.9	Obese -- class I
35 to 39.9	Obese -- class II
40 or more	Extreme obesity -- class III



## **Mature Adolescents**

Physiologically speaking, maturation refers to the tempo of sexual development during puberty. The physiologic progression of pubertal stages proceeds in a definable sequence but the age of onset and the rate of progression exhibit significant inter-individual variability. Pubertal stages from prepuberty to mature adult have been categorized by Tanner in 1962. Tanner identified 5 stages of maturation based on progressive changes in external genitalia.

For the purpose of this guideline, Tanner stage 5 will be considered physiologic maturity. The extension of guideline medication and surgery recommendations to this population is physiologically feasible. However, given the complexity of obesity variables and psychosocial issues, the use of medications and surgery in physiologically mature but younger adolescents needs to be discussed and decided within provider community practice standards.

Adults may be sub-classified using absolute values for BMI. These absolute cutoffs for BMI may also be used for the sexually mature (Tanner stage 5) fully grown adolescent. However, absolute cut-off values cannot be directly applied to all adolescent patients. Adolescence is characterized by variable growth rate and variable tempo for sexual maturation. This variability in height and body composition complicates the determination of absolute BMI cutoffs for a normally changing individual. Growth, maturation, and ethnic differences also make it difficult to determine a definite chronologic age for using adult BMI criteria.

The normative value for pediatric and adolescent BMI is highly age dependent.

See Appendix A, "Body Mass Index-For-Age Percentiles" in the original guideline document.

Since BMI is based on height and weight, it reflects the underlying variability in these features at a given chronologic age. Given the confounding effects of growth and maturation, the traditional pediatric approach to establishing normative values is to develop percentiles based on a reference population. The National Health and Nutrition Examination Survey (NHANES) has been done three times: NHANES I (1963-1970), II (1976-1980), and III (1988-1991). More recently, Rosner, et al. combined data from nine United States studies, including NHANES II and III, on over 66,000 participants. From this data set they determined BMI percentiles for ages 5-17. BMI tables are presented for boys and girls with ethnic subsets: Asian, Black, Hispanic, and White. United States weighted mean values are also provided (<http://www.cdc.gov/nchs/nhanes.htm>). Medical definitions of obesity may differ from cultural perceptions.

In the pediatric literature, the "at risk" group has been defined as the 85th percentile. The 95th percentile has been used to identify the obese or grade 2 overweight individual. Specific cutoff values for a given gender, age and ethnic group are available from the previously mentioned percentile tables.

A BMI calculation is worthwhile in the growing patient because it provides a reference point for future comparison. Subsequent observations establish a relative trajectory for this index of obesity. Although there are no standards for rate of change of BMI per year, a rapid increase or decrease warrants clinical attention. The separation between 50th and 75th percentile is approximately 2-3 BMI units for adolescent girls across ethnic groups. Adolescent boys have approximately 2 BMI units difference between these percentiles. An annual increase of greater than 3 units suggests excessive gain.

The clinical significance of an abnormal or rapidly changing BMI is assessed with the following in mind:

- BMI is not a direct measure of adiposity. It is a derived value that correlates well with total body fat and markers of secondary complications (e.g., hypertension and dyslipidemia).
- An abnormally high BMI does not address the distribution of body fat (i.e., central vs. peripheral or visceral vs. subcutaneous). Central or visceral fat carry greater risk for morbidity and mortality.
- Waist circumference (as recommended by the National Heart Lung and Blood Institute [NHLBI], see Annotation #2 in the original guideline document) provides an additional dimension for assessing visceral adiposity and clinical risk.
- Metabolic assessment is important in the patient at risk, especially if there is a family history for heart disease or type 2 diabetes mellitus.
- Clinical conditions associated with adolescent obesity are found in Table 4 in the original guideline document. Depression, anxiety, eating disorders, and sexual abuse are also important clinical associations with adolescent obesity.

***Evidence supporting this recommendation is of classes: D, R***

## 2. Assess for Major and Minor Comorbid Conditions

### Key Points:

- It is important to assess for other conditions as treatment decisions and outcomes may be influenced by their presence.
- Waist circumference greater than or equal to 40 inches for males and greater than or equal to 35 inches for females is an additional risk factor for complications related to obesity.
- For depression and eating disorders, brief screenings should be conducted if appropriate.
- Assessment should include a complete medical history to identify medications that may induce weight gain or interfere with weight loss.

### Comorbid Condition Assessment

Comorbid Condition	BMI			
	25 to 30	30 to 35	35 to 40	40+
0	Lifestyle changes	Lifestyle	Lifestyle	Lifestyle

Comorbid Condition	BMI			
	25 to 30	30 to 35	35 to 40	40+
	and behavioral management	changes and behavioral management. Consider drug therapy	changes and behavioral management. Consider drug therapy	changes and behavioral management. Consider drug therapy and/or surgical evaluation.
<b>1-3 minor comorbid conditions</b>	Lifestyle changes and behavioral management	Lifestyle changes and behavioral management. Consider drug therapy	Lifestyle changes and behavioral management. Consider drug therapy and/or surgical evaluation.	Lifestyle changes and behavioral management. Consider drug therapy and/or surgical evaluation.
<b>Major comorbid conditions OR more than 3 minor comorbid conditions</b>	Lifestyle changes and behavioral management. Consider drug therapy. The Food and Drug Administration (FDA) approves drug therapy only for BMI greater than 27.	Lifestyle changes and behavioral management. Consider drug therapy.	Lifestyle changes and behavioral management. Consider drug therapy and/or surgical evaluation.	Lifestyle changes and behavioral management. Consider drug therapy and/or surgical evaluation.

### Minor Comorbid Conditions

- Cigarette smoking
- Hypertension (blood pressure [BP] greater than or equal to 140/90) or current use of antihypertensives<sup>^</sup>
- Low-density lipoprotein (LDL) cholesterol greater than 130 mg/dL<sup>^</sup>
- High-density lipoprotein (HDL) cholesterol less than 40 mg/dL
- Pre-diabetes\*<sup>^</sup>
- Family history of premature coronary artery disease (CAD)
- Age greater than or equal to 65 years for males
- Age greater than or equal to 55 years for females or menopausal females

### Major Comorbid Conditions

- Waist circumference (males  $\geq$ 40 inches, females  $\geq$ 35 inches)<sup>^</sup>
- Established coronary artery disease
  - History of myocardial infarction
  - History of angioplasty
  - History of coronary artery bypass graft (CABG)
  - History of acute coronary syndrome
- Peripheral vascular disease

- Abdominal aortic aneurysm
- Symptomatic carotid artery disease
- Type 2 diabetes mellitus
- Obstructive sleep apnea

\* The term pre-diabetes has recently been adopted by the American Diabetes Association and others, and refers to those who have a fasting plasma glucose of 100 mg/dL to 125 mg/dL inclusive, as well as those with a two-hour post 75 gram oral glucose tolerance test value of greater than or equal to 140 mg/dL to 200 mg/dL.

^ The clustering of these symptoms has been described as the metabolic syndrome.

## **Other Conditions**

Clinicians may use the waist circumference as a measure of central adiposity. Men with waist circumferences greater than or equal to 40 inches (102 cm) and women with a waist circumference greater than or equal to 35 inches (88 cm) are at increased risk for cardiovascular disease.

In the Health Professional Follow-up Study, overall and cardiovascular mortality in men increased linearly with baseline BMI in younger men (those initially younger than 65 years) and had no relationship with BMI in older men (those initially at least 65 years); by contrast, waist circumference predicted risk for overall and cardiovascular mortality among the younger men, and predicted risk for cardiovascular death among older men.

The Iowa Women's Health Study found that the waist-hip ratio was a better predictor of total cardiovascular mortality than BMI, and that even in women in the lowest BMI quintile, there was a markedly increased risk for diabetes if they also had a high waist-hip ratio.

Waist circumference is an additional risk factor for complications related to obesity for males measuring greater than or equal to 40 inches, females greater than or equal to 35 inches. While the work group acknowledges potential difficulty implementing the measurement of waist circumference, evidence shows the importance of measuring waist circumference because of increased cardiovascular risk.

***Evidence supporting this recommendation is of class: B, C, D***

## **Screening for Depression**

The evidence showing the linkage between depression and obesity is mixed. Higher rates of depression have been found in severely obese people, especially younger women with poor body image. It is difficult to study whether the depression is secondary to the obesity or to existing comorbid conditions. Weight loss often leads to improvement of depression scores.

Depression is identified more often in obese women and teenagers and is less likely to be diagnosed in men. Depression in the elderly is often associated with weight loss while depression in younger females can be associated with weight gain.

Depression has been associated with poor weight loss outcomes. Bariatric surgery patients with poorly managed depression or anxiety are at greater risk for weight regain within the first five postoperative years. One explanation for this may be found in a line of research investigating biological pathways that link depressive symptomatology to increased adiposity and weight gain. Weight loss studies have often excluded people with depression. More studies to address this issue are warranted.

***Evidence supporting this recommendation is of classes: B, C, D, R***

Screening for depression can include asking the following questions.

Over the past month, have you been bothered by:

1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?

If the patient answers "yes" to either one of the above questions, consider using a questionnaire to further assess whether the patient has sufficient symptoms to warrant a full clinical interview and a diagnosis of clinical major depression. An example of such a questionnaire is the (Patient Health Questionnaire) PHQ-9.

This should not be considered a comprehensive screening for depression, which is beyond the scope of this guideline. See the National Guideline Clearinghouse (NGC) summary of the Institute for Clinical Systems Improvement (ICSI) guideline [Major Depression in Adults in Primary Care](#) for more information.

**Screening for an Eating Disorder**

Eating disorders, particularly binge eating disorder, may complicate the treatment of obesity.

Screening for eating disorders can include asking the following questions:

1. Do you eat a large amount of food in a short period of time -- like eating more food than another person may eat in, say, a two-hour period of time?
2. Do you ever feel like you can't stop eating even after you feel full?
3. When you overeat, what do you do? (e.g., Have you ever tried to "get rid of" the extra calories that you've eaten by doing something like: Take laxatives? Take diuretics [or water pills]? Smoke cigarettes? Take street drugs like cocaine or crank? Make yourself sick [induce vomiting])?

If the patient answers "yes" to any of the above questions, consider further evaluation or a referral to a dietitian or a behavioral health specialist who specializes in eating disorders or in health psychology and working with bariatric patients.

More comprehensive screening tools include the SCOFF, ESP, or EAT.

### **Screening for Medication Use That Contributes to Weight Gain**

The assessment of the obese patient should include a complete medication history to identify medications that may induce weight gain or interfere with weight loss including antidiabetic medication (insulin, insulin secretagogues, metformin, alfa-glucosidase inhibitors, thiazolidinediones) and psychotropic drugs. For more information regarding medications associated with weight gain, refer to the original guideline document.

## **5. Advise Weight Maintenance and Manage Other Risk Factors**

### **Key Points:**

- It is important to address the issue of weight maintenance for those with BMI in the normal range.
- Weight management includes physical activity, nutrition, and behavior management strategies.

Lifetime risk of obesity is high for residents of the U.S. Lifetime risk of diabetes is about 30% for men and 35% for women, and lifetime risk for obesity is higher than this.

Therefore, it is important to address the issue of weight maintenance for those with BMI in the normal range (18.5 to 24.9).

Successful weight management requires a lifestyle approach that integrates physical activity, nutrition, behavioral management, and attention to psychosocial needs.

- First, encourage regular physical activity at recommended levels. Regular physical activity is strongly related to maintaining normal weight. In selecting types of physical activity, it is important to consider the age of the patient, musculoskeletal limitations, and availability of exercise facilities. For inactive patients, this may include as little as 10 minutes of physical activity a day. Ideally, 30 to 60 minutes of moderate physical activity on most days of the week is recommended. However, for those who have lost a considerable amount of weight, higher amounts of physical activity may be required for weight maintenance. Enjoyment and variety of physical activity are also key features for adherence.
- Second, provide structured lifestyle modification suggestions that include specific nutrition recommendations, educational sessions, and frequent contact with health-care providers such as a dietitian. Focus on calorie balancing, using a combination of decreased caloric intake with increased calorie expenditure. Include nutrition education (i.e., interpreting food labels); managing restaurant and social eating situations; making healthy, nutritious food choices; using portion control; and recipe modification.

There is considerable evidence that individuals consuming low-fat, low-calorie diets are successful at maintaining weight loss for 12 months and longer. Data from the National Weight Control Registry demonstrates that successful weight-maintainers consume a low-calorie diet containing approximately 40 g fat (24% of calories), 200 g carbohydrate (56% of calories), and 70 g protein (19% of calories). A low fat diet (25 to 30% calories from fat) is considered the conventional therapy for treating obesity.

- Third, encourage behavior management strategies that may include weekly weight checks, food journals, and monitoring daily routine that focuses on a balanced lifestyle. Balance includes: (a) eating a nutritionally-balanced breakfast soon after awakening and eating balanced meals at regular intervals thereafter, (b) incorporating fun physical activity into the day, and (c) scheduling the week to include rest, play, and social interactions along with work, school, and family responsibilities.

Specific behavioral strategies to promote behavior change include: (a) self-monitoring some aspect of behavior which, in itself, typically results in behavior change; (b) non-food rewards and positive reinforcements; (c) reminders; (d) stimulus control (changing social or environmental cues that trigger eating behavior); (e) stress management and problem solving; and (f) helping patients believe they can be successful.

***Evidence supporting this recommendation is of classes: C, R***

## **8. Assess Readiness to Lose Weight**

### **Key Points:**

- Knowing the patient's readiness to change can help the provider understand a patient's level of motivation and how to tailor communication about weight loss.
- Patients need to set realistic, achievable goals and be held accountable to practice new behaviors that produce and maintain weight loss.

### **Introduction to Weight Management/Lifestyle Change**

Weight management is a skill. Patients need to set realistic, achievable goals and to be held accountable to practicing the new behaviors that produce and maintain weight loss. Record keeping or self-monitoring of progress on specific behaviors is key to successful weight management. Strategies to reduce calorie intake are to incorporate more fruits and vegetables into meals and snacks, make lower-calorie, healthy choices at the grocery store and in social settings, and become more aware of portion sizes consumed. Additionally, portion-controlled, calorie-controlled meal replacements may be used. Every effort needs to be made to incorporate more physical activity on a daily basis.

Patients and physicians must realize that the culture we live in continues to make eating less and being more physically active extremely challenging. It is easy for patients to become overwhelmed by the process if they believe all they need is willpower. It is discouraging if they think they have to quit eating all of their favorite foods and/or do hours of grueling exercise. It is even more challenging if they have a high level of stress in their lives.

The physician should follow the 5 A's (Ask, Advise, Assist, Assess, Arrange). Physician intervention can be effective, the physician can have an important influence, and successful management is possible.

- *ASK* about, and measure height and weight. Implement an office wide system to ensure that for every patient, preferably on an annual basis, weight is measured, body mass index is calculated, and that patients are educated about their BMI and risk status.
- *ADVISE* to lose weight. In a clear, strong, but sensitive and personalized manner, urge every overweight or obese patient to lose weight.
- *ASSESS* readiness to lose weight. Ask every overweight or obese patient if he or she is ready to make a weight loss attempt at the time (e.g., within the next 30 days).
- *ASSIST* in weight loss attempt. Help the patient with a weight loss plan. Refer to appropriate resources
- *ARRANGE* follow-up. Schedule follow-up contact, either in person or via telephone.

Refer to the original guideline document for more detailed information on the 5 As.

***Evidence supporting this recommendation is of classes: A, B, C, M, R***

See Annotation #12, "Reassess Goals and Risk Factors and Counsel Regarding Weight Maintenance."

**9. Negotiate Goals and Management Strategy to Achieve Weight Loss. Refer to Risk Appropriate Resources as Needed**

**Key Points:**

- Nutrition recommendations include calorie reduction by evaluating portion size and number of servings recommended in the United States Department of Agriculture (USDA) Food Guide Pyramid.
- The physiological effects of physical activity greatly depend on the frequency, duration, and intensity of movement.
- Pharmacotherapy, when used for six months to one year, along with lifestyle modification including nutrition and physical activity, can produce weight loss in obese adults.
- Bariatric surgery is indicated in carefully selected patients with a BMI greater than or equal to 40 or 35 to 39.9 who are at a very high absolute risk for increased morbidity or premature mortality (see the Table in Annotation #2 above). Patients are to be motivated, well-



informed in disease management, psychologically stable, and accepting of operative risks

### Management Recommendations Based on BMI/Risk of Disease

<b>BMI</b>	<b>25 to 29.9</b>	<b>30 to 34.9</b>	<b>35 to 39.9</b>	<b>≥40</b>
<b>Risk</b>	<b>Low</b>	<b>Moderate</b>	<b>High</b>	<b>Severe</b>
<b>Nutrition</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Physical Activity</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Behavioral Management</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Medication</b>	<b>*X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Surgery</b>			<b>*X</b>	<b>X</b>

\*May be considered if concomitant obesity-related risk factors or diseases are present.

### Nutrition (Balanced healthy eating plan or lower calorie balanced eating plan)

1. Encourage at least 5 servings of fruits and vegetables per day, whole grains with a fiber intake of 35 grams or more daily, less than or equal to 30% of calories from fat (7 to 10% as saturated and trans fat).
2. For weight loss, encourage calorie reduction by evaluating portion sizes and number of servings recommended.
3. Provide tips for managing eating in social situations, dining out, take-out foods, and food label reading.
4. Provide referral to a dietitian, nutritionist, or structured medically supervised nutrition program if available.

Refer to the original guideline document for additional information on Nutrition Assessment and Therapy, including the following topics:

- Diet history or eating pattern history
- Nutrition assessment
- Nutrition recommendations
- Nutrition outcomes and goals

### Physical Activity

1. Minimally, all patients should be encouraged to do at least 10 minutes of physical activity above what they are already doing each day and gradually increase the amount of time, followed by an increase in intensity.
2. Ideally, all patients should meet the current recommendations of 30 to 60 minutes of moderate intensity activity on most days per week.
3. Patients with chronic activity limitations (e.g., arthritis, respiratory dysfunction, neuropathy, morbid obesity) should be evaluated and managed to establish or enhance patient mobility.
4. Provide tips for adding small bouts of physical activity to daily activities, for example, taking the stairs, parking farther away,

exercising while watching TV. Activity breaks from screens (TV, computer, other media screens) is also important.

Refer to the original guideline document for additional information on Physical Activity, including the following topics:

- Specific roles for physical activity in obesity
- Prevention of obesity
- Acute weight loss
- Long-term weight maintenance
- Metabolic fitness with or without weight loss
- Physical activity prescription
- Frequency
- Duration
- Intensity

### **Behavioral Management**

1. Identify behaviors that may lead to increased weight gain, for example: stress, emotional eating, boredom.
2. Help patients set specific, measurable, time-limited goals to decrease calorie intake and increase physical activity as appropriate.
3. Suggest patients weigh themselves weekly and record on a daily bases the amount and type of food/beverages consumed and physical activity completed.
4. Provide support and encourage patients to also seek support from family, friends, and support groups in order to assist them with their eating, activity, and weight goals.

Refer to the original guideline document for additional information on Behavioral Management, including the following topics:

- Self-monitoring of weight, nutrition, and activity
- Teach life skills
- Additional behavioral modification strategies that play a key role in successful weight loss and maintenance including:
  - Stimulus control
  - Cognitive restructuring
  - Goal setting
  - Problem solving
  - Social support
  - Relapse prevention

### **Medications (Pharmacologic Therapy)**

1. The short-term use of drugs (less than 3 months) has not generally been found to be effective.
2. Pharmacotherapy should only be included in the context of a comprehensive treatment strategy.
3. Sibutramine and Orlistat are safe for most patients when carefully monitored by a physician and may be part of a program for weight

management or maintenance, which should include nutrition and physical activity when indicated.

Refer to the original guideline document for additional information on Pharmacologic Therapy, including the following topics:

- Safety and adverse effects (see also "Potential Harms" field in this summary)
- Drug interactions (see also "Potential Harms" field in this summary)
- Efficacy
- Therapeutics
- Patient monitoring
- Nonprescription and natural medications (see also Appendix F in the original guideline document)

## **Surgery**

1. Bariatric surgery is indicated in carefully selected patient (see "Key points" above)

Refer to the original guideline document for additional information on Surgical Management, including the following topics:

- Patient selection
- Contraindications for surgery (see also the "Contraindications" field of this summary)
- Evidence
- Restrictive procedures, including:
  - Vertical banded gastroplasty
  - Laparoscopic adjustable gastric band
- Malabsorptive procedures, including:
  - Biliopancreatic diversion
  - Duodenal switch
  - Roux-en-Y gastric bypass
- Surgical procedure selection process
- Resolution of comorbidities
- Measurement of success and failure
- Adolescent bariatric surgery
- The patient process
- Medical evaluation including obstructive sleep apnea, preoperative weight loss, and cholelithiasis
- Postoperative care
- Nutrition recommendations, including:
  - Gastric bypass diet progression
  - Strategies to maintain success with weight management
- Suggested requirements for bariatric surgery facilities
- Suggested minimum requirements for bariatric surgeons

## **12. Reassess Goals and Risk Factors and Counsel Regarding Weight Maintenance**

### **Key Points:**

- Follow-up and long-term management of weight loss is crucial.
- The primary care physician also may serve as a community leader and a public health advocate.

Patients need regular follow-up for obesity, which is a lifelong problem in most cases. Regular follow-up conveys the message that the condition is important to the patient, and affords the opportunity for monitoring BMI as well as evaluation and management of any of the common complications that are often associated with obesity.

A general recommendation of visits every 3 months is based on expert opinion, and may be varied to meet the particular needs of individual patients.

### **Definitions:**

#### **Conclusion Grades:**

**Grade I:** The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of any significant doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large samples to have adequate statistical power.

**Grade II:** The evidence consists of results from studies of strong design for answering the question addressed, but there is some uncertainty attached to the conclusion because of inconsistencies among the results from the studies or because of minor doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the question addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

**Grade III:** The evidence consists of results from studies of strong design for answering the question addressed, but there is substantial uncertainty attached to the conclusion because of inconsistencies among the results of different studies or because of serious doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from a limited number of studies of weak design for answering the question addressed.

**Grade Not Assignable:** There is no evidence available that directly supports or refutes the conclusion.

#### **Classes of Research Reports:**

##### **A. Primary Reports of New Data Collection:**

###### **Class A:**

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Non-randomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case report

B. Reports that Synthesize or Reflect upon Collections of Primary Reports:

Class M:

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

## **CLINICAL ALGORITHM(S)**

A detailed and annotated clinical algorithm is provided in the original guideline document for [Prevention and Diagnosis of Obesity](#).

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The type of supporting evidence is classified for selected recommendations (see "Major Recommendations.")

In addition, key conclusions contained in the Work Group's algorithm are supported by a grading worksheet that summarizes the important studies

pertaining to the conclusion. The type and quality of the evidence supporting these key recommendations is graded for each study.

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- Improved awareness of obesity through documentation of body mass index (BMI)
- Improved outcomes in the treatment for obesity
- Improved community involvement in the prevention and treatment of obesity
- Improved education and counsel regarding weight loss

### POTENTIAL HARMS

#### Safety and Adverse Effects

Adverse side effects from the use of weight-loss drugs have been observed in patients. Dose-related minor effects may occur soon after beginning therapy. These effects are often mild and spontaneously resolve over time. Initial adverse effects can be avoided or minimized by:

- Adjusting dosage and administration schedules
- Identifying patients at high risk for adverse effects and selecting drug therapy accordingly
- Providing patient education and monitoring for adverse effects at the beginning of therapy or when making dosage adjustments

Infrequent, but potentially serious, adverse effects can also occur much later in the course of therapy.

#### *Sibutramine*

The adverse effects associated with *sibutramine* include abnormal electrocardiogram (ECG), hypertension, palpitations, tachycardia, dry mouth (17%), headache (30%), insomnia (10%), anorexia (13%), and constipation (11.5%).

Combinations of sibutramine and other serotonergic drugs should be avoided. If such a combination is used, patients should be informed about the signs and symptoms of serotonin syndrome, which include excitement, hypomania, restlessness, loss of consciousness, confusion, disorientation, anxiety, agitation, motor weakness, myoclonus, tremor, hyperreflexia, ataxia, incoordination, hyperthermia, shivering pupillary dilation, diaphoresis, emesis, and tachycardia.

#### *Orlistat*

The adverse events of *orlistat* are mainly gastrointestinal (GI) including abdominal pain/discomfort, oily spotting, flatulence, fecal urgency, oily stool, oily evacuation, increased defecation, fecal incontinence.

Orlistat has also been shown to reduce serum concentrations of fat-soluble vitamins (vitamins A, D, E, and K).

### *Combination Drug Therapy*

The practice of combination drug therapy may increase the frequency of adverse events. There is also a lack of safety data on the use of combination therapy. Until data is available, it would be more prudent to use weight loss medications as single agents. Using the lowest possible effective dose may also reduce the chance of an adverse event.

Refer to Appendix D, "Adverse Effects of FDA Approved Medications for the Treatment of Obesity" and Appendix E, "Drug Interactions of FDA Approved Medications for Treatment of Obesity" in the original guideline document for more information on adverse effects of these and other medications.

### **Complications of Surgical Procedures**

- *Vertical Banded Gastroplasty* (VBG) may cause outlet obstruction or gastroesophageal reflux; food intolerance, especially to meat and breads; persistent vomiting. VBG has been replaced with newer techniques and is rarely performed due to failure in up to 79% of patients at 10 years.
- *Laparoscopic Adjustable Banding* is associated with erosion (0.15%) and slippage of the band (1.5%); port and tubing complication (8%); mortality rate: less than 0.2%
- *Biliopancreatic Diversion/Duodenal Switch* (BPD/DS) is associated with nutritional complications including iron deficiency (9% to 52%), B12 deficiency (11%), protein malnutrition and diarrhea. There is also a significant incidence of marginal ulceration, leak, bleeding, stenosis of the duodenoileostomy, and internal hernia formation with this operation.
- *Roux-en-Y Gastric Bypass* (RYGB) may cause iron, vitamin B12, and folate deficiency; up to 76% incidence of dumping syndrome characterized by the presence of nausea, lightheadedness, the urge to lie down and palpitations. Technical complications include leaks (3%), internal bleeding (1%), anastomotic stenosis (2% to 20%), internal hernia formation (1% to 5%), and wound infection (6.6%). The incidence of marginal ulceration can be as high as 15%. Severe life-threatening complications appear to be influenced by gender and by weight and age. Mortality rate: 0.5%.

### **Emergencies of Surgical Procedures**

- *Pulmonary Embolus* is the most common fatal complication from weight loss surgery, and the risk extends more than 90 days from surgery in the high-risk group. The patient may present to primary care or a remote emergency room (ER).

### *Gastric Bypass Procedure or Malabsorptive Procedures*

- *Closed Loop Bowel Obstruction* with Roux-en-Y may present with subtle or no findings beyond symptoms. Computed tomography (CT) is unreliable for

diagnosis, and diagnostic laparoscopy may be required. Early consultation with a surgeon who is familiar with these issues can avoid catastrophe.

- *Anastomotic Leak* or perforation of marginal ulcer may present with equivocal symptoms and subtle findings. Any sustained tachycardia greater than 120 mandates bariatric surgical consultation prior to or concurrent with cardiac workup. A patient's sense of "impending doom" should be taken very seriously.
- *Neuropathy/encephalopathy* - usually in setting of intractable vomiting and noncompliance with supplemental vitamins (after RYGB or BPD/DS).

#### *Laparoscopic Adjustable Band*

- *Slip or erosion* often presents as nighttime reflux or abdominal pain. Peritoneal signs are usually absent. Port site infection also requires surgical care.

Refer to the original guideline document for more information on complications of surgical procedures.

## CONTRAINDICATIONS

### CONTRAINDICATIONS

#### **Contraindications to Medications**

*Sibutramine* is contraindicated in patients with anorexia nervosa, concomitant monoamine oxidase (MAO) inhibitor use, concomitant use of centrally acting appetite suppressants, use of other serotonergic drugs, coronary heart disease, congestive heart failure, stroke, arrhythmia, uncontrolled hypertension, history of substance abuse, pregnancy, or lactation.

*Orlistat* is contraindicated in patients with cholestasis, chronic malabsorption syndrome, clinically significant gastrointestinal (GI) disease, and patients at risk for fat-soluble vitamin deficiency.

Refer to Annotation Appendix D "Adverse Effects of FDA Approved Medications for the Treatment of Obesity" in the original guideline document for contraindications to other drugs.

#### **Contraindications for Surgery**

The decision to use surgery to manage morbid obesity requires the surgeon to weigh the risks against the sustained benefits of the surgical procedure. On occasion, the risk of not having bariatric surgery may be greater than the risk of a contraindication.

#### *Strong Contraindications*

1. Life-threatening multi-system organ failure



2. Uncontrolled or metastatic malignancy, or other serious medical illness where caloric restriction may compromise the patient
3. Uncontrolled human immunodeficiency virus (HIV) infection
4. Hypercarbic respiratory failure
5. Active systemic infection
6. Untreated endocrine dysfunction
7. Pregnancy and/or lactation
8. Current abuse of alcohol or other substances
9. Severe or unstable psychiatric illness that would prevent adjustment to the surgical procedure

#### *Relative Contraindications*

1. Reversible obstructive sleep apnea (that can be medically optimized before surgery)
2. Presence of severe liver, renal or gastrointestinal disease
3. Current tobacco abuse (nicotine addiction)
4. Binge eating at an average frequency of twice a week for the past six months
5. Problems with impulse control
6. Documented history of noncompliance (either medical or psychosocial)

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and are not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.
- This guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients are urged to consult a health care professional regarding their own situations and any specific medical questions.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

Once a guideline is approved for general implementation, a medical group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Summaries of the measures are provided in the National Quality Measures Clearinghouse (NQMC).

### **Key Implementation Recommendations**

The following system changes were identified by the guideline work group as key strategies for health care systems to incorporate in support of the implementation of this guideline.

1. Establish a system for using a "Patient Readiness Scale." The scale can be used to determine if the patient is "ready" to talk about weight loss and/or would like information.
2. Establish a system for staff to calculate body mass index (BMI) prior to the physician entering the exam room. This action may be considered a vital sign and built into the rooming protocol.
3. Develop tracking systems to produce periodic audits for use in developing solutions to identified problems.
4. Establish a system for staff and physician training around skills and knowledge in the areas of motivational interviewing; brief, focused advice on nutrition, physical activity and lifestyle changes; and evaluation of evidence of effectiveness of treatment options.
5. Establish a system for continuing education on evidence-based obesity management for providers, nurses, and ancillary clinic staff.
6. Remove barriers to referral programs for weight loss. Know where your resources are and what processes are required: for example, if your organization refers patients to an outside source, what are the criteria for referral?
7. Develop medical record systems to track status of patients under the provider's care with the capability to produce a tickler system for patient follow-up by provider/staff.
8. Use tools such as posters and brochures throughout the facility to promote healthy life style around nutrition and activity while encouraging patient knowledge of their BMI.
9. Develop patient-centered education and self-management programs, which may include self-monitoring, self-management, and skills such as journaling.
10. Outcomes measurement:
  - Build systems for outcomes measures, as well as ongoing process measures.
  - Response rate to various treatments/strategies.
  - Improvement rates – the BMI is stable or has decreased over time.
11. Systems to coordinate care ensure continuity and keep providers informed of progress.
  - Build electronic systems or tickler system (if no electronic medical record [EMR]).
  - Educate patients to foster awareness and knowledge of BMI for self-monitoring and reporting.
  - Structure follow-up visits with patient per guideline recommendations.

## IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms  
Clinical Algorithm  
Patient Resources  
Pocket Guide/Reference Cards  
Quality Measures  
Resources

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

## RELATED NQMC MEASURES

- [Prevention and management of obesity \(mature adolescents and adults\): percentage of patients with a documented Body Mass Index \(BMI\) equal to or greater than 25 who were given education and counsel for weight loss strategies.](#)

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better  
Living with Illness  
Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2006 Nov. 105 p. [226 references]

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2004 Nov (revised 2006 Nov)

### GUIDELINE DEVELOPER(S)

## **GUIDELINE DEVELOPER COMMENT**

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers, Allina Medical Clinic, Altru Health System, Aspen Medical Group, Avera Health, CentraCare, Columbia Park Medical Group, Community-University Health Care Center, Dakota Clinic, ENT Specialty Care, Fairview Health Services, Family HealthServices Minnesota, Family Practice Medical Center, Gateway Family Health Clinic, Gillette Children's Specialty Healthcare, Grand Itasca Clinic and Hospital, HealthEast Care System, HealthPartners Central Minnesota Clinics, HealthPartners Medical Group and Clinics, Hutchinson Area Health Care, Hutchinson Medical Center, Lakeview Clinic, Mayo Clinic, Mercy Hospital and Health Care Center, MeritCare, Mille Lacs Health System, Minnesota Gastroenterology, Montevideo Clinic, North Clinic, North Memorial Care System, North Suburban Family Physicians, Northwest Family Physicians, Olmsted Medical Center, Park Nicollet Health Services, Pilot City Health Center, Quello Clinic, Ridgeview Medical Center, River Falls Medical Clinic, Saint Mary's/Duluth Clinic Health System, St. Paul Heart Clinic, Sioux Valley Hospitals and Health System, Southside Community Health Services, Stillwater Medical Group, SuperiorHealth Medical Group, University of Minnesota Physicians, Winona Clinic, Ltd., Winona Health

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## **GUIDELINE COMMITTEE**

Committee on Evidence-Based Practice

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## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

In the interest of full disclosure, Institute for Clinical Systems Improvement (ICSI) has adopted the policy of revealing relationships work group members have with companies that sell products or services that are relevant to this guideline topic. The reader should not assume that these financial interests will have an adverse impact on the content of the guideline, but they are noted to fully inform readers. Readers of the guideline may assume that only work group members listed below have potential conflicts of interest to disclose.

No work group members have potential conflicts of interest to disclose.

ICSI's conflict of interest policy and procedures are available for review on ICSI's website at [www.icsi.org](http://www.icsi.org).

## **GUIDELINE STATUS**

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2005 Nov. 100 p.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available from the [Institute for Clinical Systems Improvement \(ICSI\) Web site](http://www.icsi.org).

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: [www.icsi.org](http://www.icsi.org); e-mail: [icsi.info@icsi.org](mailto:icsi.info@icsi.org).

## **AVAILABILITY OF COMPANION DOCUMENTS**

The following are available:

- Prevention and management of obesity (mature adolescents and adults). Executive summary. Bloomington (MN): Institute for Clinical Systems Improvement, 2006 Nov. 1 p. Electronic copies: Available from the [Institute for Clinical Systems Improvement \(ICSI\) Web site](http://www.icsi.org).
- Body mass index-for-age percentiles. Appendix A in the original guideline document. Electronic copies: Available from the [Institute for Clinical Systems Improvement \(ICSI\) Web site](http://www.icsi.org).
- Physical activity prescription. Appendix H in the original guideline document. Electronic copies: Available from the [Institute for Clinical Systems Improvement \(ICSI\) Web site](http://www.icsi.org).

- ICSI pocket guidelines. April 2006 edition. Bloomington (MN): Institute for Clinical Systems Improvement, 2006. 298 p.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: [www.icsi.org](http://www.icsi.org); e-mail: [icsi.info@icsi.org](mailto:icsi.info@icsi.org).

## **PATIENT RESOURCES**

The following is available:

- Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement, 2006 Nov. 50 p.

Electronic copies: Available from the [Institute for Clinical Systems Improvement \(ICSI\) Web site](http://www.icsi.org).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

## **NGC STATUS**

This NGC summary was completed by ECRI on January 12, 2005. It was updated by ECRI on January 11, 2006 and January 30, 2007.

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